

## **Teratogenic effects of retinyl palmitate during early and late gestation periods in rats.**

### **Abstract**

Retinyl palmitate or vitamin A palmitate has been associated with dose-related developmental toxicity when administered orally to mice, rats, rabbits, and monkeys during critical stages of embryonic development. We report a study to determine the teratogenic effects of retinyl palmitate in pregnant Sprague Dawley rats during early and late gestation periods and to observe the toxic effects of retinyl palmitate in dams. Forty sexually mature fertile female Sprague Dawley rats were divided into 4 groups: Early control, Late control, Early gestation (Early) and Late gestation (Late) groups. Control groups were given a placebo of maize oil while treatment groups were given the same dosage of retinyl palmitate. Pregnant females were randomly assigned to the different groups and treated with retinyl palmitate during early pregnancy on gestation day (GD) 1-7 for Early group and GD 8-14 for Late group. The results obtained showed that retinyl palmitate treated groups had no significant difference in maternal body weights compared to control groups. Maternal kidney weights in early treated group showed significant difference ( $p < 0.05$ ) compared to early control group while liver weights had no significant difference in both control and treatment groups. Fetuses from both early and late treated groups showed a significant decrease in weight compared to control groups. For fetal skeletal anomalies, treatment with retinyl palmitate in Early and Late groups showed malformed wavy ribs and thoracic vertebrae, additional ribs, lumbar vertebral defect and extra ossification center. This preliminary experiment suggests that retinyl palmitate show significant teratogenic effects when fed to pregnant Sprague Dawley rats during early and late gestation periods.

**Keyword:** Retinyl palmitate; Teratogenesis; Gestation; Female rodents.